

American River Basin: Antelope Creek Improvement Project

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Proposal Cost Estimate

This Proposition (Prop) 1E Implementation Grant Proposal is for Placer County Flood Control and Water Conservation District's and Placer County Water Agency's Antelope Creek Improvement Project. The total cost of the proposal is \$5,839,747. Of this amount, \$2,919,874 (~50%) is provided as non-state funding match and \$2,919,873 (~50%) is being requested from the State through the Prop 1E Grant Program.

Summary

The Antelope Creek Improvement Project is a collaboration between Placer County Water Agency (PCWA) and Placer County Flood Control and Water Conservation District (District). This multi-objective regional flood control, water supply and water quality improvement project is located within the Dry Creek Watershed area of the American River Basin and will be completed in three phases. The project will meet multiple planning objectives by improving water supply and water quality, increasing flood protection, restoring local ecosystems and expanding an existing public recreation corridor.

Phases 1 and 2 of this multi-purpose effort include a regional flood control project on Antelope Creek, a major tributary of the larger Dry Creek. Through the design and construction of two on-channel weirs along an existing open space-protected reach of the creek, the project will provide flood control and flood damage reduction benefits to repeatedly damaged areas of downtown Roseville. The project will reduce peak flood flows over a wide range of flood events, improve the timing of flood flows, enhance existing riparian corridor ecosystems, and improve water quality through groundwater recharge and the natural treatment of temporarily-stored flood waters within the floodplain. Both ecosystem restoration and public recreational opportunities will be enhanced wherever possible within the floodplain of Antelope Creek, which currently includes a multi-purpose public trail system. In-stream improvements will include bank re-contouring to ensure overbank flows, specific habitat enhancements for fisheries, removal of invasive

plant species and replanting with natives. Select in-stream habitat improvements will be incorporated to enhance and protect two threatened and endangered fish species, including Chinook salmon and Central Valley Steelhead. An interpretive trail sign system and a public trailhead/community node are also proposed to improve access to the multi-purpose trail system while helping to educate the public on the project.

The Antelope Creek Improvement Project also includes improvements to the upstream Clover Valley Reservoir (to occur during Phase 3), which regulates water deliveries in the lower Antelope Canal and Creek and is operated by PCWA. The unlined portion of the Antelope Canal, near the Union Pacific Railroad track crossing, feeds the reservoir and has experienced severe erosion and down-cutting causing the reservoir to become silted and impairing the reservoir capacity. This phase of the project will construct a pipeline to convey the water from the Antelope Canal to the reservoir to reduce or eliminate erosion, and will include dredging of the reservoir to remove existing sediment and silt, restoring reservoir capacity and improving water quality both in the reservoir and in the downstream Clover Valley Creek and Antelope Creek.

Aside from the individual benefits of each phase of the project, the overall Antelope Creek Improvement Project will provide flood reduction, water supply, and water quality benefits to the region. The desilting of the reservoir in Phase 3 of the project, along with the two weirs from the first two project phases, will allow for better flood management of Clover Valley and Antelope Creeks and for the overall Dry Creek Watershed. Additionally, the third phase of the project will reduce the long-term operational costs of the first two phases by possibly reducing the sediment load in Antelope Creek by reducing the frequency of weir maintenance activities.

A summary of the budget for the Antelope Creek Improvement Project is presented in Table 1. The budget is based on the latest project documentation and estimates for professional services. The total cost for this project is \$5,839,747. The funding match for this project is \$2,919,874 or 50%. This budget has been prepared to reflect the specific work items shown in Attachments 3 and 5, the Work Plan and Schedule, respectively.

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Attachment 4 – Budget

Table 1: Antelope Creek Improvement Project

Project Budget						
Project Title: Antelope Creek Improvement Project						
Budget Category		(a)	(b)	(c)	(d)	(e)
		Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs	\$118,510	\$0	\$0	\$118,510	100%
(b)	Land Purchase/Easement	\$585,550	\$0	\$0	\$585,550	100%
(c)	Planning/Design/Engineering/ Environmental Documentation	\$745,680	\$0	\$0	\$745,680	100%
(d)	Construction/Implementation	\$371,614	\$2,517,878	\$0	\$2,889,492	13%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$459,950	\$0	\$0	\$459,950	100%
(f)	Construction Administration	\$0	\$401,995	\$0	\$401,995	0%
(g)	Other Costs	\$68,783	\$0	\$0	\$68,783	100%
(h)	Construction/Implementation Contingency	\$569,787	\$0	\$0	\$569,787	100%
(i)	Grand Total	\$2,919,874	\$2,919,873	\$0	\$5,839,747	50%
*Sources of funding: Renewal and Replacement Funds, Water Rate and Dry Creek Trust Funds						

(a) Direct Project Administration Detail

Direct project administration costs for the project were calculated based on expected level of effort by involved staff and costs. Table 2 details the hourly wages paid by discipline and the number of hours to be expended for project administration. Direct project administration costs include general project administration tasks (claim preparation, communications with the California Department of Water Resources [DWR], and PCWA's and the District's Boards), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). An additional \$5,520 is included to account for miscellaneous supplies and reproduction, which results in a total project administration cost of \$118,510.

Table 2: Administration Detail

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total
Administration	\$115	400	\$46,000
Reporting	\$115	80	\$9,200
Labor Compliance Program			\$57,790
		Total	\$112,990

(b) Land Purchase/Easement Detail

The City of Roseville (City) owns and maintains the current open space-zoned 8.6-acre property in which Phase 1 and Phase 2 of the project are located. The land was dedicated to the City of Roseville in 1996. The City is a member agency of the Placer County Flood Control and Water Conservation District and is in support of the proposed project (please see letter of support included with supporting documentation). It is anticipated that a permanent, flood control and conservation easement will be issued to the District from the City. The District has also identified three private property owners with lands only slightly impacted by the project. The District plans to meet with these owners and negotiate flood and conservation type easements across their lands. If necessary, the District is empowered to implement eminent domain proceedings to acquire said easements as necessary.

For the third phase of the project, easements will be required to allow access to the canal facility where the intake structure for the pipeline will be located and to maintain sections of the pipeline. PCWA has already begun preliminary discussions with adjacent landowners. Temporary easements will also be required for construction activities.

Costs have been estimated for the anticipated project easements and are summarized in Table 3.

Table 3: Land Purchase/Easement

Project Phase	Estimated Land or Easement Cost
Phase 1 Easements	\$166,665
Phase 2 Easements	\$388,885
Phase 3 Easements	\$30,000
Total	\$585,550

(c) Planning/Design/Engineering/Environmental Documentation Detail

Direct project planning/design/engineering/environmental documentation costs were estimated using hourly wage paid by discipline and the number of hours to be expended for planning, design, engineering, and environmental documentation work items.

At present, all planning work for the project has been completed and all three project phases are past the conceptual (10%) design phase; therefore, this budget item includes a 30% Design, 60% Design, 90% (pre-final) Design, and 100% (final) Design for each project phase.

Preparation of a Mitigated Negative Declaration (MND) is expected to begin February 2012, with completion of the final document by June 2012 for the first two project phases. For the third project phase, the MND is expected to be started in March 2012 and completed in October 2012. A separate MND is required for the third project phase as the responsible party for this portion of the project is different than that for the first two project phases. No additional environmental documentation is anticipated for the project. Finally, multiple permits are anticipated for all phases of the Antelope Creek Improvement Project. The costs associated with these permits are included in Budget Category (g) of this work plan whereas their preparation costs are included below.

Table 4: Planning/Design/Engineering/Environmental Documentation Detail

Stage	Discipline	Hourly Wage (\$/hr)	Number of Hours	Total
Design - Phase 1	Senior Principal	\$215	85	\$18,275
Design - Phase 1	Principal Professional	\$155	125	\$19,375
Design - Phase 1	Senior Professional	\$135	200	\$27,000
Design - Phase 1	Project Professional	\$115	225	\$25,875
Design - Phase 1	Staff Professional	\$85	250	\$21,250
Design - Phase 1	Engineering Assistant	\$78	125	\$9,750
Design - Phase 1	CAD	\$85	180	\$15,300
Design - Phase 1	Clerical	\$48	125	\$6,000
Design - Phase 1	Geotechnical Sub	\$190	670	\$50,000
CEQA and Permitting - Phase 1	Environmental Sub	\$150	335	\$50,250
Phase 1 Subtotal				\$243,075

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Stage	Discipline	Hourly Wage (\$/hr)	Number of Hours	Total
Design - Phase 2	Senior Principal	\$215	85	\$18,275
Design - Phase 2	Principal Professional	\$155	125	\$19,375
Design - Phase 2	Senior Professional	\$135	200	\$27,000
Design - Phase 2	Project Professional	\$115	225	\$25,875
Design - Phase 2	Staff Professional	\$85	250	\$21,250
Design - Phase 2	Engineering Assistant	\$78	125	\$9,750
Design - Phase 2	CAD	\$85	180	\$15,300
Design - Phase 2	Clerical	\$48	125	\$6,000
Design - Phase 2	Geotechnical Sub	\$190	650	\$50,000
CEQA and Permitting - Phase 2	Environmental Sub	\$150	335	\$50,250
Phase 2 Subtotal				\$243,075
Design - Phase 3	Senior Principal	\$215	120	\$25,800
Design - Phase 3	Principal Professional	\$155	175	\$27,125
Design - Phase 3	Senior Professional	\$135	250	\$33,750
Design - Phase 3	Project Professional	\$115	325	\$37,375
Design - Phase 3	Staff Professional	\$85	255	\$21,675
Design - Phase 3	Engineering Assistant	\$78	210	\$16,380
Design - Phase 3	CAD	\$85	255	\$21,675
Design - Phase 3	Clerical	\$48	250	\$12,000
CEQA - Phase 3	Environmental Sub	\$150	135	\$20,250
Permitting - Phase 3	Environmental Sub	\$150	290	\$43,500
Phase 3 Subtotal				\$259,530
Total				\$745,680

(d) Construction/Implementation Detail

The total cost for Construction/Implementation for the Project is \$2,889,492. The basis of the estimate is shown in Tables 5 through 7 for Phases 1, 2 and 3, respectively. Costs shown in this table are furnished and installed prices and include material, labor and equipment costs.

Table 5: Phase 1 - Cost for Construction

Item (units)	Unit Costs (\$)	Number of Units	Total (\$)
Con-Span Arch (LS)	\$200,000	1	\$200,000
Reinforced Concrete Footings (CY)	\$800	25	\$20,000
Excavation (CY)	\$20	8,000	\$160,000
Asphalt Paving (SF)	\$10	5,000	\$50,000
Heavy Duty Turf Reinforcement Mat (SF)	\$10	2,500	\$25,000
Riprap Slope Protection (CY)	\$100	2,000	\$200,000
ALERT stream level and precip gages (EA)	\$12,500	2	\$25,000
Mobilization	\$86,000	1	\$86,000
Phase 1 Total			\$766,000

Table 6: Phase 2 - Cost for Construction

Item (units)	Unit Costs (\$)	Number of Units	Total (\$)
Con-Span Arch (LS)	\$150,000	1	\$150,000
Reinforced Concrete Footings (CY)	\$800	25	\$20,000
Excavation (CY)	\$20	3,000	\$60,000
Bicycle Path Paving (SF)	\$10	4,000	\$40,000
Heavy Duty Turf Reinforcement Mat (SF)	\$10	1,500	\$15,000
Riprap Slope Protection (CY)	\$100	1,500	\$150,000
Public Trailhead/Community Node (LS)	\$50,000	1	\$50,000
Mobilization	\$82,000	1	\$82,000
Phase 2 Total			\$567,000

Table 7: Phase 3 - Cost for Construction

Item (units)	Unit Costs (\$)	Number of Units	Total (\$)
CVR Access (LS)	\$25,000.00	1	\$25,000
Drying Bed Access Road (LS)	\$30,000.00	1	\$30,000
Vacuum Barge Desilting (CY)	\$20.00	9,600	\$192,000
On-Site Drying Beds (SF)	\$5.00	43,560	\$217,800
Load and Off-Haul 20 Miles by Truck (CY)	\$26.25	9,600	\$252,000
Disposal (CY)	\$5.00	9,600	\$48,000
Site Clean-Up (LS)	\$25,000.00	1	\$25,000
Mobilization/Demobilization (LS)	\$120,000.00	1	\$120,000
Phase 3.1 Disilting Clover Valley Reservoir Subtotal			\$909,800
Clearing and Grubbing (LF)	\$20.00	785	\$15,700
Intake Structure (LS)	\$160,000.00	1	\$160,000
South Pond Structure (LS)	\$45,000.00	1	\$45,000
24" ID HDPE Pipeline Segment 1 (LF)	\$124.77	465	\$58,018
24" ID HDPE Pipeline Segment 2 (LF)	\$124.77	320	\$39,926
Clean UPRR Culvert (LS)	\$15,000.00	1	\$15,000
Access Roadway (SF)	\$1.50	11,775	\$17,663
Site Clean-Up (LS)	\$30,000.00	1	\$30,000
Mobilization/Demobilization (LS)	\$65,000.00	1	\$65,000
Phase 3.2 Permanent Supply Pipeline Subtotal			\$446,307
Clearing and Grubbing (LF)	\$20.00	500	\$10,000
Connection to South Pond Structure (LS)	\$25,000.00	1	\$25,000
UPRR Permit (LS)	\$15,000.00	1	\$15,000
24" ID HDPE Pipeline Construction	\$124.77	500	\$62,385
UPRR Culvert Use (LS)	\$5,000.00	1	\$5,000
CVR Access Fill (LS)	\$3,000.00	1	\$3,000
CVR Discharge Fill (LS)	\$10,000.00	1	\$10,000
Site Clean-Up (LS)	\$30,000.00	1	\$30,000
Pipeline Removal (LS)	\$20.00	500	\$10,000
Mobilization/Demobilization (LS)	\$30,000.00	1	\$30,000
Phase 3.3 Temporary Bypass Pipeline Subtotal			\$200,385
Phase 3 Total			\$1,556,492

(e) Environmental Compliance/ Mitigation/Enhancement Detail

Environmental Compliance, Mitigation and Enhancement costs for the Antelope Creek Improvement Project have been calculated to be \$459,950 based on the past cost of similar projects. This includes all materials and equipment costs for site restoration and any additional environmental compliance costs.

In addition, monitoring required as part of implementation of the Project Performance Plan will be implemented under this task.

Table 8: Cost of Environmental Compliance/Mitigation/Enhancement

Item	Total (\$)
Re-landscaping/Irrigation	\$75,000
Boulder Complexes. Root Wads	\$30,000
Bank Contouring	\$45,000
Interpretive Signage	\$10,000
Benches	\$4,975
Phase 1 Subtotal	\$164,975
Re-landscaping/Irrigation	\$75,000
Boulder Complexes. Root Wads	\$30,000
Bank Contouring	\$45,000
Interpretive Signage	\$10,000
Benches	\$4,975
Phase 2 Subtotal	\$164,975
Phase 3 - Mitigation Measures	\$115,000
Phase 3 Subtotal	\$115,000
Project Monitoring Plan	\$15,000
Total	\$459,950

(f) Construction Administration Detail

Construction Administration for the Antelope Creek Improvement Project is expected to cost approximately \$401,995 for all three phases, based on the estimated time and materials costs for the project below. This estimate is based on the District and PCWA experience with similar projects. General contract administration and field inspections will be performed by PCWA and District staff. A third-party construction management firm will be utilized by the District during Phases 1 and 2 of for the project, while a third-party may also be used for the third Phase.

Table 9: Cost of Construction Administration

Discipline	Hours	Unit Cost (\$)	Total Costs (\$)
Senior Principal	50	\$215	\$10,750
Principal Professional	150	\$155	\$23,250
Senior Professional	180	\$120	\$21,600
Project Professional	200	\$120	\$24,000
Staff Professional	265	\$74	\$19,610
Engineering Assistant	140	\$100	\$14,000
Clerical	75	\$48	\$3,600
Phase 1 Subtotal			\$116,810
Senior Principal	45	\$215	\$9,675
Principal Professional	135	\$155	\$20,925
Senior Professional	175	\$120	\$21,000
Project Professional	195	\$120	\$23,400
Staff Professional	260	\$74	\$19,240
Engineering Assistant	140	\$100	\$14,000
Clerical	75	\$48	\$3,600
Phase 2 Subtotal			\$111,840
Senior Principal	130	\$215	\$27,950
Principal Professional	185	\$155	\$28,675
Senior Professional	225	\$120	\$27,000
Project Professional	275	\$120	\$33,000
Staff Professional	330	\$74	\$24,420
Engineering Assistant	215	\$100	\$21,500
Clerical	225	\$48	\$10,800
Phase 3 Subtotal			\$173,345
Total			\$401,995

(g) Other Costs Detail

Other costs associated with the Antelope Creek Improvement Project include permit fees and the preparation of a Project Performance Monitoring Plan. Total costs for this task is \$68,783, with the majority of the cost for permit fees.

Table 10: Other Costs

Item	Cost (\$)
Regional Water Quality Control Board Section 401 Permit	\$2,000
U.S. Army Corps of Engineers Section 404 Encroachment Permit	\$2,000
Department of Fish and Game 1602 Streambed Alteration Agreement	\$4,483
City of Roseville Grading and Encroachment Permit	\$300
City of Roseville Tree Mitigation Permit	\$25,000
Phase 1 and 2 Subtotal	\$33,783
Regional Water Quality Control Board Section 401 Permit	\$2,000
U.S. Army Corps of Engineers Section 404 Encroachment Permit	\$2,000
Placer County Planning Department Tree Permit	\$25,000
Union Pacific Railroad Permit	\$4,500
Phase 3 Subtotal	\$33,500
Prepare Project Performance Monitoring Report	\$1,500
Total	\$68,783

(h) Construction/Implementation Contingency Detail

The construction/implementation contingency percentage applied to this project is 15% of the construction costs for Phases 1 and 2, and 20% of the construction costs for Phase 3. These contingencies are based on prior project experience and engineering practice and the planning level of the phase. These costs include funds to handle unknown and unspecified conditions encountered during construction or implementation of the project.

Table 11: Contingencies

Project Phase	Estimated Land or Easement Cost
Phase 1 Contingency	\$139,900
Phase 2 Contingency	\$95,589
Phase 3 Contingency	\$334,298
	\$569,787

(i) Grand Total (Sum rows (a) through (h) for each column) Detail

The total estimated cost for Antelope Creek Improvement Project is \$5,839,747; \$2,919,874 is provided through funding match and \$2,919,873 is being requested from the Proposition 1E IRWM stormwater grant program.

Calculation of Funding Match %

The funding match for Antelope Creek Improvement Project is \$2,919,874 or 50% of the total project costs and is provided by Renewal and Replacement Funds, Water Rate, the District's Dry Creek Trust Funds, which consist of fees on new developments, and in-kind services.